

# **2001 COASTAL ILLICIT CONNECTION IDENTIFICATION AND ELIMINATION GRANT PROJECT**

## **A Final Report to The New Hampshire Estuaries Project**

Submitted by

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## TABLE OF CONTENTS

TABLE OF CONTENTS.....	i
EXECUTIVE SUMMARY .....	1
INTRODUCTION .....	1
PROJECT GOALS AND OBJECTIVES .....	1
METHODS .....	2
RESULTS AND DISCUSSION .....	2
Exeter .....	3
Dover.....	3
Somersworth .....	4
CONCLUSIONS AND RECOMMENDATIONS .....	4

## List of Tables

Table 1. Summary of Activities in Dover, NH, 2001 Illicit Connection Identification and Elimination Grant .....	3
Table 2. 2001 Coastal Illicit Connection Identification and Elimination Grant Project Costs .....	5

## **EXECUTIVE SUMMARY**

The New Hampshire Department of Environmental Services (DES) received funds in 2001 from the New Hampshire Estuaries Project (NHEP) to administer grants to coastal municipalities to eliminate illicit discharges into their storm drainage systems. This final report describes the three projects that were funded under this grant. Projects in Exeter, Dover, and Somersworth involved eliminating numerous sewage discharges into storm drainage systems from houses, apartment buildings, and commercial buildings, as well as discharges to wetlands from floor drains in town garages. All of these efforts helped improve water quality in the coastal area by reducing pollution from bacteria, oil, grease, and heavy metals.

NHEP chose to fund illicit discharge detection and elimination projects for a number of reasons. Primarily, this grant was established in order to fulfill several water quality action plans identified in the NHEP Management Plan. In addition, the Coastal/Piscataqua watershed has been identified by DES as a priority watershed in need of restoration. DES has worked in the coastal watershed since 1996 to reduce bacteria inputs that cause the closure of shellfish beds. Finally, all of the communities that were awarded grants are regulated as small municipal separate storm sewer systems (MS4s) under the Phase II federal stormwater regulation. The financial assistance these municipalities received has helped them comply with one of the requirements of the new regulations.

## **INTRODUCTION**

This final report describes a grant program funded by NHEP and administered by DES. A Memorandum of Agreement (MOA) between NHEP and DES created a grant program to provide assistance to coastal communities to identify and eliminate illicit discharges into the storm drain system. A total of \$60,000 was available for grants to municipalities. DES issued a request for proposals (RFP), chose grant recipients, and managed the grant agreements. This report provides details on the projects completed by Exeter, Dover, and Somersworth. The deadline for completion of all grant projects was June 30, 2003.

## **PROJECT GOALS AND OBJECTIVES**

The goal of the project was to provide financial and technical assistance to coastal municipalities to identify and eliminate illicit discharges into the storm drainage system.

The project's objectives are derived from several Action Plans identified in the NHEP Management Plan relating to water quality and shellfish resources (see [www.state.nh.us/nhep/Mgtplan/mgtplan.htm](http://www.state.nh.us/nhep/Mgtplan/mgtplan.htm)). One overall goal of the Management Plan is to ensure that New Hampshire's estuarine waters and tributaries will meet standards for pathogenic bacteria including fecal coliform, *E. coli*, and Enterococci. Action WQ-4C aims to eliminate illicit connections in Seacoast communities, and Action WQ-7 aims to provide incentives to fix or eliminate illegal direct discharges such as grey water pipes, failing septic systems, and agricultural runoff. Lastly, Action SHL-2 is to identify sources of and reduce or eliminate contaminants in the estuaries watersheds. The grant summarized in this report was established to help carry out these action plans.

## **METHODS**

On March 14, 2001, the Governor and Executive Council approved an MOA between the New Hampshire Office of State Planning and DES to implement several NHEP actions to improve the environmental quality of the state's estuaries, including funding for illicit discharge remediation projects.

On April 30, 2001, DES issued a request for proposals (RFP) to all communities within Zone A of the coastal watershed (as designated in the NHEP Management Plan), announcing the availability of \$60,000 for illicit connection remediation. The requirements for the use of the NHEP funds were as follows:

1. The proposed project will eliminate an illicit discharge to a storm drainage system. Remedial activities can include:
  - Removing an illicit connection from the storm drainage system,
  - Reinstalling plumbing to a residence or commercial establishment, and/or
  - Rerouting pollutant discharge to an adequate treatment facility.
2. The proposed project meets the eligibility criteria (see below).
3. Funding must be matched by an equal local (non-federal) share in cash or in-kind services.
4. All projects must be completed by December 31, 2002. This final date was changed to June 30, 2003, in an amendment to the MOA approved by Governor and Council on December 4, 2002.

Proposals were received from Exeter, Dover, Somersworth, and two other municipalities by a rolling deadline of October 1, 2001. DES reviewed the proposals and assessed their merit based on the following criteria:

- Locations of illicit connections are known.
- Illicit connections discharge into a storm drainage system that discharges into State surface waters within the coastal watershed.
- Elimination of the identified illicit connections is supported by town/city officials.
- Property owners are likely to cooperate.
- Practical solutions can be implemented.
- Results can be achieved.

The applications from Exeter, Dover, and Somersworth were accepted using these criteria. The two other projects were rejected because they involved direct discharges into surface waters, rather than discharges to the municipal storm drainage system. Because several of the projects took longer to complete than expected, it became necessary to extend the project's deadline beyond December 31, 2002 to June 30, 2003.

## **RESULTS AND DISCUSSION**

The activities performed as part of each grant are discussed in this section.

## Exeter

Several town garage buildings had floor drains that were connected to drainage ditches and wetlands located within the Squamscott River drainage area. The grant provided funding to fix each of these.

A floor drain in the highway garage was connected to an oil/water separator and a drainage ditch. The project involved opening the existing oil/water separator and testing the contents. The results indicated that the contents could be disposed in municipal wastewater lagoons. The town used its sewer vacuum truck to siphon the contents and transport them to the lagoons. A contractor removed the outlet pipe, sealed the outlet hole, and created a holding tank. An audible and visible alarm system was installed on the holding tank. When the tank fills, the alarm will indicate that the contents need to be siphoned and disposed again.

The mechanics bay and equipment storage bay both had several floor drains that discharged to a swale leading to an abandoned lagoon. The project involved installing an oil/water separator and connecting the drains to the sanitary sewer line.

The water/sewer garage had floor drains that connected to a drain manhole that discharged to a grass swale. The project involved connecting these floor drains to the same oil/water separator used by the mechanics and equipment storage bays. The floor drains are now connected to the sanitary sewer.

The grant amount for this project was \$13,700; however, actual project costs were less than expected. The grant paid for half of the project costs, or \$7,242. Exeter provided \$7,242 in non-federal match.

## Dover

Over the past few years, Dover has been finding and fixing illicit discharges at a rapid pace. The city has attempted to fix all illicit discharges prior to resurfacing many downtown streets. The DES Watershed Assistance Section has collected numerous bacteria samples from the Dover storm drainage system, and DES staff has worked with the city to focus efforts in areas of suspected sewage discharges. The grant work scope was to eliminate seven suspected sources of sewage into the storm drainage system, conduct dye and smoke testing at other possible sources, and to complete additional fixes as time and budget allowed. Table 1 below shows eight buildings at which connections were made to the municipal sewer. Dye and smoke testing confirmed that six other suspected illicit connections were not connected to the storm drainage system.

**Table 1. Summary of Activities in Dover, NH, 2001 Illicit Connection Identification and Elimination Grant**

<b>Illicit discharge eliminated</b>	<b>No illicit discharge</b>
436 Central Avenue	40 Cushing Street
611 Central Avenue	22B Grove Street
3-5 Chestnut Street	41 Grove Street
27 Cushing Street	43 Grove Street
16 Fisher Street	38 Maple Street
73 Grove Street	51 Maple Street
145 Locust Street	
309 Washington Street	

The grant amount for this project was \$29,850; however, actual project costs were less than expected. The grant paid for half of the project costs, or \$9,662.74. Dover provided \$9,662.74 in non-federal match. By the end of the grant deadline, there were no remaining confirmed locations of illicit discharges in Dover. More have since been found, but the grant period had expired. Dover may apply for this grant again in the future, but the length of time it takes to generate an approved grant contract may be prohibitively long.

### **Somersworth**

The purpose of the Somersworth grant was to remove several illicit discharges into the city's storm drain system. Before the grant project started, the DES Watershed Assistance Section had identified sewage discharges in the storm drainage system in Somersworth. Storm drainage for most of the central part of the city collects and discharges through one large outfall pipe on the Salmon Falls River. Bacteria levels from this pipe were consistently high and ranged between 1,900 and 18,000 cts/100 mL. DES investigated the storm drainage system and identified several "hot spots" by bacteria sampling and working with the city to smoke test in certain areas. The grant was to fix the discharges identified by DES and the city.

The sewage line from a house located at 12 Garden Street was connected to the storm drainage system. The sewage line ran from their house, across their driveway, and into a neighbor's yard. The city worked to locate this piping and determined how to connect the house to the nearest sewer line. A contractor was hired to excavate through bedrock to connect the house to the sewer line.

Two multi-unit apartment buildings at 132-140 High Street were connected to the storm drainage system rather than the sewer system. The city hired a plumber to determine the location of sewer line, after which they used dye tracing and a television crew to find the exact location of the connection to the storm drainage system. A contractor was hired to reroute the line to the sewer system on Washington Street.

The shared sewage line at 41 and 47 Union Street was suspected to be discharging to the storm drainage system, but investigations determined there was no illicit connection. Future work will explore further up the line to locate the source of sewage that was observed during the time of tracing.

Illicit connections at 99 Green Street and 179 Franklin Street were investigated by the city, but the fixes have been dealt with by the homeowners. On Green Street, a bathroom and a sink were tied to the storm drainage system, and the Franklin Street residence had a washing machine connected to the storm drainage system.

The grant amount for this project was \$16,450. Somersworth provided \$17,185.69 in non-federal match.

## **CONCLUSIONS AND RECOMMENDATIONS**

Each of the grant recipients was able to eliminate several illicit discharge sources during the project period. DES has completed follow-up sampling in Dover and Somersworth to confirm the fixes. Although DES has not measured the changes in receiving waters, we are encouraged by the progress these municipalities have made towards improving water quality. The grants

described in this final report complemented DES's efforts and helped foster a partnership between DES and the communities in order to solve some of the water quality problems in the area. Table 2 summarizes the final project costs under this grant.

**Table 2. 2001 Coastal Illicit Connection Identification and Elimination Grant Project Costs**

<b>Grant recipient</b>	<b>Grant amount</b>	<b>Match amount</b>	<b>Total project cost</b>
Dover	\$9,662.74 <sup>1</sup>	\$9,662.74	\$19,325.48
Exeter	\$7,242.00 <sup>2</sup>	\$7,242.00	\$14,484.00
Somersworth	\$16,450.00	\$17,185.69	\$33,635.69
<b>Total</b>	<b>\$33,354.74</b>	<b>\$34,090.43</b>	<b>\$67,445.17</b>

Notes:

<sup>1</sup> Contract grant amount was \$29,850.00, but Dover project ran under budget.

<sup>2</sup> Contract grant amount was \$13,700.00, but Exeter project ran under budget.

Based on the experience of the 2001 grant, the following changes are recommended for future grant opportunities with NHEP.

- Continued funding for illicit discharge remediation is recommended. Significant progress has been made to eliminate known illicit discharges with the help of this grant, and hopefully the number of illicit discharges will soon start to go down. However, with the advent of the Phase II stormwater regulation, many coastal municipalities will be undergoing their own efforts to identify and fix illicit discharges. This may result in the identification of more illicit discharges.
- As Phase II municipalities begin to implement their illicit discharge detection and elimination plans, we may want to offer financial assistance to help them identify illicit discharges (lab fees or labor to cover investigation efforts).
- Although DES and OSP have very little influence over this, a more streamlined Governor and Council process would be highly beneficial. If it took less time for a grant agreement to be approved, the municipalities and the State would both gain. The current process significantly cuts into the grant period and also prevents quick action on the projects. A city like Dover, which completes its fixes as they undergo road repaving projects, may have trouble applying for this grant again because they would have to wait a minimum of two months before starting. The state would benefit by spending less staff time on the administration of these small federally-funded grants, and by achieving water quality improvements sooner.